

AMENDMENT AND RESPONSE IN REPLY TO OFFICE ACTION OF 7/05/2002

Applicants: Ohta, et al.

Serial No.: 09/938,280

Examiner: William S. LEE

Group Art Unit 3677

Atty Dkt.: 2019.005

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A1

10 includes an engagement portion 10a that engages with the coil spring 11. The coil spring 11 is thus suspended between the engagement portions 8d, 10a. The first ratchet 8 and latch 10 are urged toward each other through the coil spring 11.

IN THE CLAIMS:

Please amend Claims 1, 3, 4, 6, 8, 11 and 16 as follows:

Swb *Sc1*

1 1. (Amended) A door closer that holds a door at a fully closed position by
2 engaging with a prescribed engagement member, wherein, when the engagement member
3 is disengaged from the door closer, the door moves to a released position that is located
4 slightly separate from the fully closed position in a door opening direction, the door
5 closer comprising:
6 a latch, which engages with the engagement member, wherein the latch
7 rotates between an initial position at which the latch receives the engagement member
8 and a fully latched position, and wherein, when the latch rotates from the initial position
9 to the fully latched position after receiving the engagement member, the door is moved to
10 the fully closed position;
11 an urging member, which urges the latch toward the initial position;
12 a ratchet, which is urged toward the latch, wherein, when the latch reaches
13 the fully latched position, the ratchet engages with the latch to hold the latch at the fully
14 latched position;
15 an actuation mechanism, which separates the ratchet from the latch to
16 disengage the ratchet from the latch, wherein, when the ratchet disengages from the latch,
17 the urging member returns the latch from the fully latched position to the initial position

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18 such that the engagement member disengages from the latch and the door moves from the
19 fully closed position to the released position;
20 a courtesy switch, which detects that the door is located at a predetermined
21 position separate from the released position in the door opening direction, wherein the
22 actuation mechanism holds the ratchet at a position at which the ratchet cannot engage
23 with the latch after the ratchet disengages from the latch, unless the detection device
24 detects that the door is located at the predetermined position;
25 a motor, which drives the actuation mechanism; and
26 a controller, which controls the motor, said controller containing a timer
27 having a settable reference time for latching operations, which when exceeded causes
28 said motor to run in an inverse direction to reverse the latching operation.

→ Please cancel Claim 2.

Sub C1
A3
1 3. (Amended) The door closer as set forth in Claim 1, wherein the
2 controller maintains the motor in a stopped state after the ratchet disengages from the
3 latch, unless the detection device detects that the door is located at the predetermined
4 position.

1 4. (Amended) The door closer as set forth in Claim 1, wherein the
2 controller controls the motor such that the actuation mechanism disengages the ratchet
3 from the latch in accordance with an external instruction.

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1 6. (Amended) The door closer as set forth in Claim 1, wherein:
2 the latch rotates from the initial position to the fully latched position via a
3 latching start position;

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4 the ratchet is a first ratchet;
5 the door closer further includes a second ratchet, which is urged toward
6 the latch, wherein the second ratchet engages with the latch when the latch reaches the
7 latching start position from the initial position; and
8 the controller instructs the actuation mechanism to move the second
9 ratchet such that the second ratchet rotates the latch to the fully latched position when the
10 second ratchet engages with the latch.

1 8. (Amended) The door closer as set forth in Claim 1, wherein the
2 actuation mechanism includes a rotary body driven by the motor and a rotational position
3 sensor that detects a rotational position of the rotary body, and the controller controls the
4 motor in accordance with the rotational position of the rotary body detected by the
5 rotational position sensor.

1 11. (Amended) A door closer that holds a door at a fully closed position by
2 engaging with a prescribed engagement member, wherein, when the engagement member
3 is disengaged from the door closer, the door moves to a released position that is located
4 slightly separate from the fully closed position in a door opening direction, the door
5 closer comprising:

6 a latch, which engages with the engagement member, wherein the latch
7 rotates between an initial position at which the latch receives the engagement member
8 and a fully latched position, and wherein, when the latch rotates from the initial position
9 to the fully latched position after receiving the engagement member, the door is moved to
10 the fully closed position;

11 an urging member, which urges the latch toward the initial position;

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12 a ratchet, which is urged toward the latch, wherein, when the latch reaches
13 the fully latched position, the ratchet engages with the latch to hold the latch at the fully
14 latched position;

15 an actuation mechanism, which separates the ratchet from the latch to
16 disengage the ratchet from the latch, wherein, when the ratchet disengages from the latch,
17 the urging member returns the latch from the fully latched position to the initial position
18 such that the engagement member disengages from the latch and the door moves from the
19 fully closed position to the released position;

20 a motor, which drives the actuation mechanism;

21 a controller, which controls the motor, said controller containing a timer
22 having a settable reference time for latching operations, which when exceeded causes
23 said motor to run in an inverse direction to reverse the latching operation; and

24 a courtesy switch, which detects that the door is located at a predetermined
25 position separate from the released position in the door opening direction, wherein the
26 controller maintains the motor in a stopped state such that the actuation mechanism holds
27 the ratchet at a position at which the ratchet cannot engage with the latch after the ratchet
28 disengages from the latch, unless the detection device detects that the door is located at
29 the predetermined position.

Sub C1
A1 16. (Amended) A door closer that holds a door at a fully closed position by
1 engaging with a prescribed engagement member, wherein, when the engagement member
2 is disengaged from the door closer, the door moves to a released position that is located
3 slightly separate from the fully closed position in a door opening direction, the door
4 closer comprising:

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6 a latch, which engages with the engagement member, wherein the latch
7 rotates between an initial position at which the latch receives the engagement member
8 and a fully latched position, and wherein, when the latch rotates from the initial position
9 to the fully latched position via a latching start position between the initial position and
10 the fully latched position after receiving the engagement member, the door moves to the
11 fully closed position;

12 an urging member, which urges the latch toward the initial position;

13 a latching ratchet, which is urged toward the latch, wherein, when the
14 latch reaches the latching start position from the initial position, the latching ratchet
15 engages with the latch to rotate the latch to the fully latched position;

16 a holding ratchet, which is urged toward the latch, wherein, when the latch
17 reaches the fully latched position, the holding ratchet engages with the latch to hold the
18 latch at the fully latched position;

19 an actuation mechanism, which separates the latching ratchet and the
20 holding ratchet from the latch to disengage the ratchets from the latch, wherein, when the
21 ratchets disengage from the latch, the urging member returns the latch from the fully
22 latched position to the initial position such that the engagement member disengages from
23 the latch and the door moves from the fully closed position to the released position;

24 a motor, which drives the actuation mechanism;

25 a controller, which controls the motor, said controller containing a timer
26 having a settable reference time for latching operations, which when exceeded causes
27 said motor to run in an inverse direction to reverse the latching operation; and

28 a courtesy switch, which detects that the door is located at a predetermined
29 position separate from the released position in the door opening direction, wherein the
30 controller maintains the motor in a stopped state such that the actuation mechanism holds